



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/911,918	07/24/2001	Suresh Golwalkar	35706.9100	4220
34398	7590	06/20/2005	EXAMINER	
PRIMARION			DINH, JACK	
2507 WEST GENEVA DRIVE			ART UNIT	
TEMPE, AZ 85282			PAPER NUMBER	
			2873	

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/911,918	Applicant(s) GOLWALKAR ET AL.	
	Examiner Jack Dinh	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8, 10, 11, 13-35, 41, 42 and 46-92 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 8, 10, 11, 13-35, 42 and 46-92 is/are allowed.
- 6) ☒ Claim(s) 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>DETAILED ACTION</u> . |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henson et al. (US Patent 5,325,455) in view of Bierlein et al. (US Patent 5,243,676).

Regarding claim 41, Henson (figures 1 and 3) is interpreted as disclosing a method of forming an optical coupler, the method comprising the steps of creating electrical connectors **94**, attaching a waveguide **38** to the electrical connectors, encapsulating **14** at least a portion of the electrical connectors and at least a portion of the waveguide. Henson is interpreted as disclosing all the claimed limitations except for polishing the end of the waveguide. Within the same field of endeavor, Bierlein is interpreted as disclosing the teaching of polishing waveguide input and output faces (col. 6, lines 20-21). Therefore, it would have been obvious to one having ordinary skill in the art at the time that the invention was made to provide the step of polishing the end of the waveguide, as taught by Bierlein, for the purpose of providing a clean contact surface with external devices.

Allowable Subject Matter

2. Claims 8, 10, 11, 13-35, 42, 46-92 are allowed. The following is a statement of reasons for the indication of allowable subject matter: The present application relates generally to optoelectronic devices. More particularly, the invention relates to apparatus for coupling optical fibers to optoelectronic devices, systems including the apparatus and optoelectronic components, and methods of forming the apparatus and system. The prior art taken either singly or in combination fails to anticipate or fairly suggest the limitations of the independent or dependent claims, in such a manner that a rejection under 35 USC 102 or 103 would be improper.

Regarding claim 8, the prior art fails to disclose the die attachment material to facilitate bonding of the connector to a substrate.

Regarding claim 10, the prior art fails to disclose that the electrical connector includes a conductive plug within the microelectronic device.

Regarding claim 13, the prior art fails to disclose that the electrical connector formed at least partially within the encapsulant.

Regarding claim 18, the prior art fails to disclose that at least a portion of the encapsulant comprises a transfer mold compound.

Regarding claim 20, the prior art fails to disclose a substrate comprising electrical connectors formed as electrical traces and conductive plugs.

Regarding claim 21, the prior art fails to disclose that the guide groove is formed of conductive material.

Art Unit: 2873

Regarding claim 23, the prior art alone or in combination fails to disclose an optical interconnect system comprising an optical couple comprising a waveguide, an encapsulant, and an electrical connector formed at least partially within the encapsulant, a fiber optic cable attached to the optical coupler, and a substrate electrically couple to the coupler.

Regarding claim 42, the prior art fails to disclose the step of singulating.

Regarding claim 48-52, the prior art fails to disclose an optical transceiver wherein a photonics component flip-chip mounted to the electrical connector.

Regarding claim 53-57, the prior art alone or in combination fails to disclose an optical transceiver comprising an electrical connector, an optoelectronic component mounted to the first portion of the electrical connector, a substrate attached to a second portion of the electrical connector, an optical transmission medium disposed proximate the electrical connector, an encapsulant surrounding the connector and the transmission medium, and a guide groove formed within a portion of the encapsulant.

Regarding claim 58, the prior art fails to disclose the step of encapsulating for maintaining the electrical connector and the waveguide in a fixed space relationship.

Regarding claim 70, the prior art fails to disclose an encapsulant for maintaining the electrical connector and the optical transmission medium in a fixed space relationship.

Regarding claim 71, the prior art fails to disclose an optical transmission medium comprising fused optical fibers having a core diameter less than the first core diameter of the optical fiber.

Regarding claim 81, the prior art fails to disclose an optical transmission medium juxtaposed with the electrical connector, an optical path of the optical transmission medium

Art Unit: 2873

being parallel to and coextensive with at least a portion of the electrical connector, and an optoelectronic device attached to the electrical connector transverse to the optical path and adjacent one end of the optical transmission medium.

Regarding claim 86, the prior art fails to disclose an optical transmission medium attached to the electrical connector wherein the optical transmission medium being parallel to at least a portion of the electrical connector such that a surface portion of the electrical connector and an end surface of the optical transmission medium form a substantially coplanar surface, and an optoelectronic device attached to the surface portion of the electrical connector and adjacent the optical transmission medium at the coplanar surface.

Other Information/Remarks

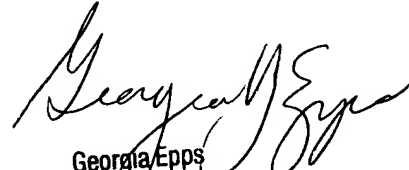
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Dinh whose telephone number is 571-272-2327. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2873

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jack Dinh



Georgia Epps
Supervisory Patent Examiner
Technology Center 2800